

FIG.1

GAG GTG CAT CTG GTG GAG TCT GGG GGA GAC TTA GTG AGG CCT GGA
glu val his leu val glu ser gly gly asp leu val arg pro gly

GGG TCC CTG AAA CTC TCC TGT GCA GCC TCT GGA TTC ACT TTC GGA
gly ser leu lys leu ser cys ala ala ser gly phe thr phe gly

CDR1
 ←→
 AGT TAT GGC ATG TCT TGG GTT CGC CAG ACT GCA GAC AAG AGG CTG
ser tyr gly met ser trp val arg gln thr ala asp lys arg leu

CDR2
 ←→
 GAG TGG GTC GCA ACC ATT TAT AGT GGT GGT TTT TAC ACC TAC TAT
glu trp val ala thr ile tyr ser gly gly phe tyr thr tyr tyr

CCA GAC AGT GTG AGG GGA CGA TTC ACC ATC TCC AGA GAC AAT GTC
pro asp ser val arg gly arg phe thr ile ser arg asp asn val

AAG GAA ATC GTG TAT CTG CAA ATG AGC AGT CTG AAG TCT GAG GAC
lys glu ile val tyr leu gln met ser ser leu lys ser glu asp

CDR3
 ←→
 ACA GCC ATG TAT TAC TGT GCA AGA CGG ACG GTA GTA TCT ACG GAC
thr ala met tyr tyr cys ala arg arg thr val val ser thr asp

←→
 TAT ACT TTG GAC TAC TGG GGT CAA GGA ACC TCA GTC ATC GTC TCC
tyr thr leu asp tyr trp gly gln gly thr ser val ile val ser

TCA (SEQ ID NO:1)

ser (SEQ ID NO:2)

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FIG.2

GAT ATC CAG ATA ACA CAG ATT ACA TCC TCC CTG GCT GCC TCT CTG
asp ile gln ile thr gln ile thr ser ser leu ala ala ser leu

CDR1

GGA GAC AGA GTC ACC ATC AGT TGC CGG CCA AGT CAG GAC ATC AGC
gly asp arg val thr ile ser cys arg pro ser gln asp ile ser

AAT TTT TTA AAC TGG TTT CAG CAG AAA CCA GAT GGA ACT GTT GAA
asn phe leu asn trp phe gln gln lys pro asp gly thr val glu

CDR2

GTC CTG ATC TGC TAC ACA TTA AGA ATG CAC TTA GGA GTC CCA TCA
val leu ile cys tyr thr leu arg met his leu gly val pro ser

ACG TTC AGT GGC TGT GTG TCT GGA ACA TAT TAT ACT CTC ACC AGT
thr phe ser gly cys val ser gly thr tyr tyr thr leu thr ser

AGC AAC CTG GAA CAA GAA GAT ATA GAC ACT TCC TTT GCC ATT AGG
ser asn leu glu gln glu asp ile asp thr ser phe ala ile arg

CDR3

ATT ATA CGC GTG CTC ACG GTC GGT GCA GGG ACC ACG CTG GAG CTG
ile ile arg val leu thr val gly ala gly thr thr leu glu leu

AAA (SEQ ID NO:3)

lys (SEQ ID NO:4)

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FIG. 3

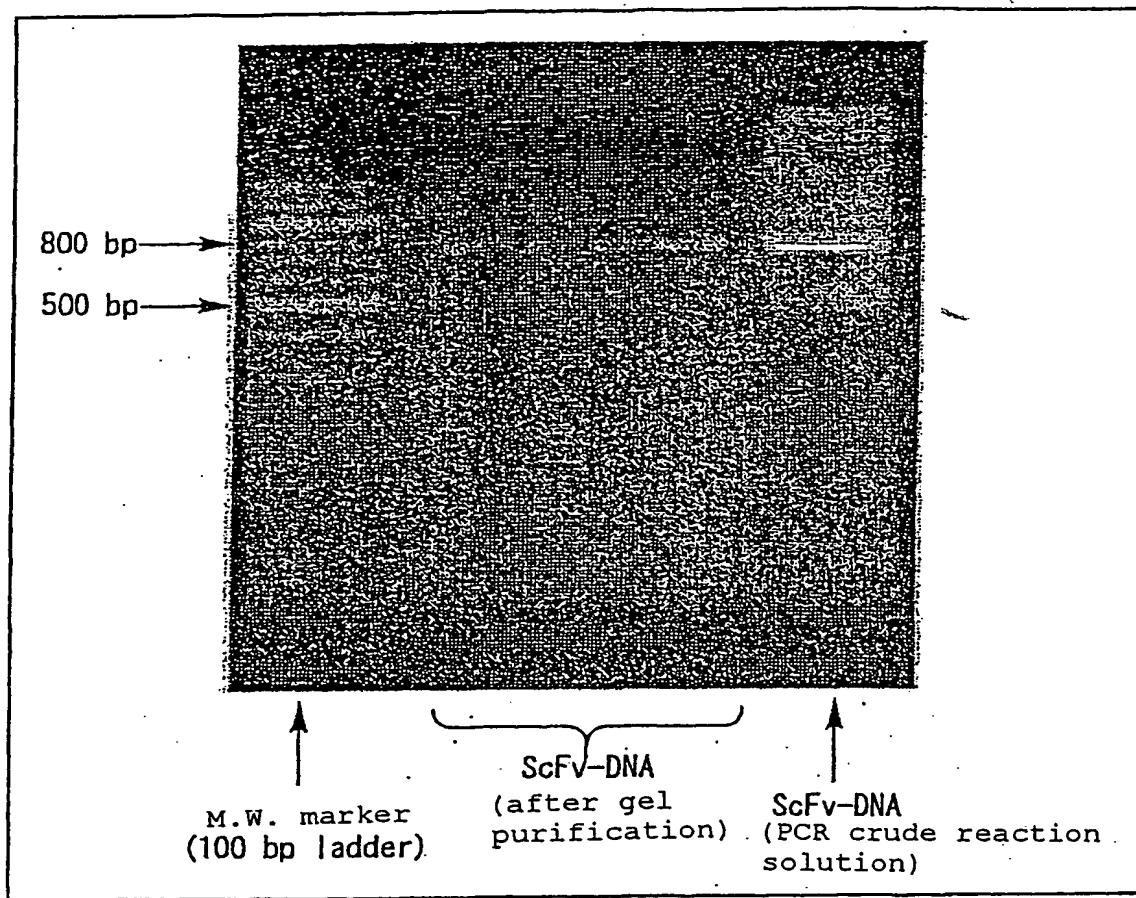


FIG. 4

GAT GTA CAA CTT CAG GAG TCA GGA CCT GGC CTC GTG AAA CCT TCT
asp val gln leu gln glu ser gly pro gly leu val lys pro ser

GAG TCT CTG TCT CTC ACC TGT TCT GTC ACT GGC TAC TCC ATC ACC
glu ser leu ser leu thr cys ser val thr gly tyr ser ile thr

CDR1
AGT GGT TAT TAC TGG AAT TGG ATC CGG CAA TTT CCA GGA AAC AAA
ser gly tyr tyr trp asn trp ile arg gln phe pro gly asn lys

CDR2
CTG GAT TGG ATG GGC CAT ATA AGT TAC GAC GGT AAC AAT AAC TAC
leu asp trp met gly his ile ser tyr asp gly asn asn asn tyr

CDR3
AAC CCA TCT CTC AAA AAT CGA ATC TCC ATC ACT CGT GAC ACA TCT
asn pro ser leu lys asn arg ile ser ile thr arg asp thr ser

AAG AAC CAG TTT TTC CTG AAG TTG AAT TCT GTG ACT ACT GAG GAC
lys asn gln phe phe leu lys leu asn ser val thr thr glu asp

CDR3
ACA GAT ACA TAT TAC TGT TCT ATG ATC CTC TAT GGT ATG GAC TAC
thr asp thr tyr tyr cys ser met ile leu tyr gly met asp tyr

TGG GGT CAG GGA ACC TCA GTC ACC GTC TCC TCA (SEQ ID NO:24)
trp gly gln gly thr ser val thr val ser ser (SEQ ID NO:25)

FIG. 5

CAG ATT GTT CTC ACC CAG TCT CCA GCA ATC ATG TCT GCA TCT CTA
 gln ile val leu thr gln ser pro ala ile met ser ala ser leu

GGG GAA CGG GTC ACC ATG ACC TGC ACT GCC AGC TCA AGT GTA AGT
 gly glu arg val thr met thr cys thr ala ser ser ser val ser

TCC AGT TAC TTG CAC TGG TAC CAG CAG AAG CCA GGA TCC TCC CCC
 ser ser tyr leu his trp tyr gln gln lys pro gly ser ser pro

AAA CTC TGC ATT TAT AGC ACA TCC AAC CTG GCT TCT GGA GTC CCA
 lys leu cys ile tyr ser thr ser asn leu ala ser gly val pro

ACT CGC TTC AGT GGC AGT GGG TCT GGG ACC TCT TAC TCT CTC ACA
 thr arg phe ser gly ser gly ser gly thr ser tyr ser leu thr

ATA AGC AGC ATG GAG GCT GAA GAT GCT GCC ACT TAT TAC TGC CAC
 ile ser ser met glu ala glu asp ala ala thr tyr tyr cys his

CAG TAT CAT CGT TCC CCA CCC ACG TTC GGC TCG GGG ACA AAG TTG
 gln tyr his arg ser pro pro thr phe gly ser gly thr lys leu

GAA ATA AAA (SEQ ID NO:26)

glu ile lys (SEQ ID NO:27)

FIG. 6

DH-150 GAG GTG CAT CTG GTG GAG TCT GGG GGA GAC TTA GTG AGG CCT GGA
 DF-34 GAT GTA CAA CTT CAG GAG TCA GGA CCT GGC CTC GTG AAA CCT TCT
 glu val his leu val glu ser gly gly asp leu val arg pro gly
 asp val gln leu gln glu ser gly pro gly leu val lys pro ser

DH-150 GGG TCC CTG AAA CTC TCC TGT GCA GCC TCT GGA TTC ACT TTC GGA
 DF-34 GAG TCT CTG TCT CTC ACC TGT TCT GTC ACT GGC TAC TCC ATC ACC
 gly ser leu lys leu ser cys ala ala ser gly phe thr phe gly
 glu ser leu ser leu thr cys ser val thr gly tyr ser ile thr

CDR1

DH-150 AGT TAT GGC ATG TCT --- TGG GTT CGC CAG ACT GCA GAC AAG AGG
 DF-34 AGT GGT TAT TAC TGG AAT TGG ATC CGG CAA TTT CCA GGA AAC AAA
 ser tyr gly met ser --- trp val arg gln thr ala asp lys arg
 ser gly tyr tyr trp asn trp ile arg gln phe pro gly asn lys

CDR2

DH-150 CTG GAG TGG GTC GCA ACC ATT TAT AGT GGT GGT TTT TAC ACC TAC
 DF-34 CTG GAT TGG ATG GGC CAT ATA AGT --- TAC GAC GGT AAC AAT AAC
 leu glu trp val ala thr ile tyr ser gly gly phe tyr thr tyr
 leu asp trp met gly his ile ser --- tyr asp gly asn asn asn

DH-150 TAT CCA GAC AGT GTG AGG GGA CGA TTC ACC ATC TCC AGA GAC AAT
 DF-34 TAC AAC CCA TCT CTC AAA AAT CGA ATC TCC ATC ACT CGT GAC ACA
 tyr pro asp ser val arg gly arg phe thr ile ser arg asp asn
 tyr asn pro ser leu lys asn arg ile ser ile thr arg asp thr

DH-150 GTC AAG GAA ATC GTG TAT CTG CAA ATG AGC AGT CTG AAG TCT GAG
 DF-34 TCT AAG AAC CAG TTT TTC CTG AAG TTG AAT TCT GTG ACT ACT GAG
 val lys glu ile val tyr leu gln met ser ser leu lys ser glu
 ser lys asn gln phe phe leu lys leu asn ser val thr thr glu

CDR3

DH-150 GAC ACA GCC ATG TAT TAC TGT GCA AGA CGG ACG GTA GTA TCT ACG
 DF-34 GAC ACA GAT ACA TAT TAC TGT TCT ATG ATC CTC TAT GGT --- ---
 asp thr ala met tyr tyr cys ala arg arg thr val val ser thr
 asp thr asp thr tyr tyr cys ser met ile leu tyr gly --- ---

DH-150 GAC TAT ACT TTG GAC TAC TGG GGT CAA GGA ACC TCA GTC ATC GTC
 DF-34 --- --- --- ATG GAC TAC TGG GGT CAG GGA ACC TCA GTC ACC GTC
 asp tyr thr leu asp tyr trp gly gln gly thr ser val ile val
 --- --- --- met asp tyr trp gly gln gly thr ser val thr val

DH-150 TCC TCA (SEQ ID NO:1)
 DF-34 TCC TCA (SEQ ID NO:24)
 ser ser (SEQ ID NO:2)
 ser ser (SEQ ID NO:25)

FIG. 7

DH-150 GAT ATC CAG ATA ACA CAG ATT ACA TCC TCC CTG GCT GCC TCT CTG
 DF-34 CAG ATT GTT CTC ACC CAG TCT CCA GCA ATC ATG TCT GCA TCT CTA
 asp ile gln ile thr gln ile thr ser ser leu ala ala ser leu
 gln ile val leu thr gln ser pro ala ile met ser ala ser leu

CDR1

DH-150 GGA GAC AGA GTC ACC ATC AGT TGC CGG CCA AGT CAG --- GAC ATC
 DF-34 GGG GAA CGG GTC ACC ATG ACC TGC ACT GCC AGC TCA AGT GTA AGT
 gly asp arg val thr ile ser cys arg pro ser gln --- asp ile
 gly glu arg val thr met thr cys thr ala ser ser val ser

CDR2

DH-150 AGC AAT TTT TTA AAC TGG TTT CAG CAG AAA CCA GAT GGA ACT GTT
 DF-34 TCC AGT TAC TTG CAC TGG TAC CAG CAG AAG CCA GGA TCC TCC CCC
 ser asn phe leu asn trp phe gln gln lys pro asp gly thr val
 ser ser tyr leu his trp tyr gln gln lys pro gly ser ser pro

CDR2

DH-150 GAA GTC CTG ATC TGC TAC ACA TTA AGA ATG CAC TTA GGA GTC CCA
 DF-34 AAA CTC TGC ATT TAT AGC ACA TCC AAC CTG GCT TCT GGA GTC CCA
 glu val leu ile cys tyr thr leu arg met his leu gly val pro
 lys leu cys ile tyr ser thr ser asn leu ala ser gly val pro

DH-150 TCA ACG TTC AGT GGC TGT GTG TCT GGA ACA TAT TAT ACT CTC ACC
 DF-34 ACT CGC TTC AGT GGC AGT GGG TCT GGG ACC TCT TAC TCT CTC ACA
 ser thr phe ser gly cys val ser gly thr tyr tyr thr leu thr
 thr arg phe ser gly ser gly thr ser tyr ser leu thr

CDR3

DH-150 AGT AGC AAC CTG GAA CAA GAA GAT ATA GAC ACT TCC TTT GCC ATT
 DF-34 ATA AGC AGC ATG GAG GCT GAA GAT GCT GCC ACT TAT TAC TGC CAC
 ser ser asn leu glu gln glu asp ile asp thr ser phe ala ile
 ile ser ser met glu ala glu asp ala ala thr tyr tyr cys his

DH-150 AGG ATT ATA CGC GTG --- CTC ACG GTC GGT GCA GGG ACC ACG CTG
 DF-34 CAG TAT CAT CGT TCC CCA CCC ACG TTC GGC TCG GGG ACA AAG TTG
 arg ile ile arg val --- leu thr val gly ala gly thr thr leu
 gln tyr his arg ser pro pro thr phe gly ser gly thr lys leu

DH-150 GAG CTG AAA (SEQ ID NO:3)
 DF-34 GAA ATA AAA (SEQ ID NO:26)
 glu leu lys (SEQ ID NO:4)
 glu ile lys (SEQ ID NO:27)